

between the position of the default stopper and the full open position; and

a default stopper provided at a position opened from a close position whereby a force of said return spring is stopped from acting on said throttle shaft in the closing direction from said position.

B' [11. A control device for an internal combustion engine, in which when an electric actuator for driving a throttle valve has a trouble and hence the throttle valve is kept at a default position, the injection amount of fuel and/or the timing of ignition is switched over to a safety traveling mode.

12.¹⁰ A throttle valve control device for an internal combustion engine, in which a throttle valve is closed from an intermediate opening position against the force of a first spring and opened from the intermediate opening position against the force of a second spring, wherein there is further provided a mechanism which switches over a spring acting on the throttle valve from the first spring to the second spring and vice versa at the position of the intermediate opening position.

13.¹¹ A motor-driven type throttle valve control device for an internal combustion engine, comprising:

a coupling member capable of rotating relatively to said throttle valve shaft;

a default spring which is connected at one end thereof to said coupling member and at the other end thereof to a fixed member which supports said throttle valve shaft;

a return spring which is connected at one end thereof to said coupling member and at the other end thereof to a rotatable member which is mounted on said throttle valve shaft; and

an engagement element provided between said throttle valve shaft and said coupling member thereby causing the both to rotate together as engaged when said throttle valve shaft is rotated from said default open position to a full close position, whereby

said default spring stores a restoring force to return said throttle valve shaft and coupling member from said full close position to said default open position when the throttle valve shaft is rotated from the default open position to said full close position, and whereby

said return spring stores a restoring force to return said throttle valve shaft from a full open position to said default open position when the throttle valve shaft is rotated from the default open position to said full open position.

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14. A motor-driven type throttle valve control device for an internal combustion engine, comprising:

a throttle valve shaft;

a coupling member capable of rotating relatively to said throttle valve shaft;

a return spring which is connected at one end thereof to coupling member and at the other end thereof to a fixed member which supports said throttle valve shaft;

a default spring which is connected at one end thereof to said coupling member and at the other end thereof to a rotatable member which is mounted on said throttle valve shaft;

an engagement element provided between said throttle valve shaft and said coupling member for engaging said throttle valve shaft and said coupling member thereby urging the both to rotate together when throttle valve shaft is rotated from a default open position to an open position, whereby

said default spring stores a restoring force to return said throttle valve shaft from a full close position to the default open position when said throttle valve shaft is rotated from the default open position to said full close position, and whereby

said return spring stores a restoring force to return said throttle valve shaft and said coupling member from a full open position to the default open position when the throttle valve shaft is rotated from the default open position to said full open position.

¹²
~~15.~~ A motor-driven type throttle valve control device for an internal combustion engine according to claim ~~13~~¹¹, wherein said